

### ABSTRACT OF THE DISCLOSURE

A microstructure for chemical processing and manufacture is disclosed. The microstructure includes a plurality of microchannel walls constructed of glass, ceramic, glass-ceramic or combinations of these materials, which define at least one microchannel for accommodating chemicals to be processed. At least one coating layer including a catalyst support and a catalyst is adhered to the plurality of microchannel walls. A method of manufacturing a microstructure for chemical processing and manufacture is also disclosed.